Engineering Physics Lab Report 1

Experiment 1: Graphing a Linear Relationship

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Table of Content

Objective

To verify the linear relationship between the circumference and the diameter of

circular objects by taking experimental date and utilizing graphical techniques.

Learning Outcome

Upon the completion of the experiment, the student will be able to apply the linear relationship between the circumference and the diameter of circular objects to determine the value of pi, π

Apparatus

Various circular objects in the form of cylinders and spheres,

Vernier calipers straight edge. String and linear graph paper.

Procedure

1. Use the Vernier calipers to measure the diameter and the circumference of 5 or more circular objects provided.

2. A piece of string will help in determining the circumference of the objects.

3. You may also think of other larger or smaller objects located in the lab which you wish to include, feel free to do so.

4. Record these measured values in units of centimeters (cm)

Analysis

1. Plot your date on the linear graph paper provided. Consider circumference C as the dependent variable and diameter D as the independent variable.

2. Use a straight edge to draw the best straight line and compare its slope to the accepted value of pi.

3. Extend your straight line to the C axis. Compare your intercept on the C axis with the expected value of zero.

4. Find the ratio of C/D for each of your original date points\. Calculate the average value of these ratios and compare it to pi. Also compare it to your slope from Analysis step 1

Result

Name	Circumference (cm)	Diameter (cm)
15N weight	32.8	10.16
Retort stand	4.6	1.270
Water bottle	22.8	7.072
Flying wheel	5.4	9.362
Marking pen	6.4	1.492

Discussion

The value of π that I got form this experiment is 27/8 = 3.375 and the actual value of π is 3.14 so the error is 0.2

Conclusion

To find the approximate value of π I plot a graph that I will attach with this report and the Circumference was in the vertical axis and the Diameter was in the horizontal axis, I will get a straight line so I have to make a triangle and get the value of the hypotenuse.